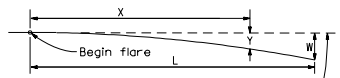
NOTES

1. Post, blocks and hardware to be used are shown on Standard Plans A77B, A77C and A77CA.
2. Guard railing post spacing to be 1905 mm center to center, except as otherwise noted.
3. Except as noted, posts and blocks shown are 150 mm x 200 mm wood. MW 150 x 14 steel posts with 200 mm x 200 mm notched wood blocks may be used for 150 mm x 200 mm wood posts and blocks where applicable and when specified.
4. Rail elements to be installed as shown on Standard Plan A77A for wood post and wood block installations and as shown on Standard Plan A77AA for steel post and wood block installations.
5. A 1.2 m minimum clearance is required between the face of the railing and the face of a fixed object located directly behind a guard railing post. Where a fixed object is behind the railing, but not directly behind a guard railing post, a 910 mm minimum clearance, is required between the face of the railing and the face of the fixed object. Where minumum clearances cannot be obtained, construct guard railing as shown in "Approach Railing Transition Details for Fixed Objects" on this plan.
6. Direction of traffic indicated by ⟶.
7. For connection details, see Standard Plans A77J and A77K.
8. For terminal anchor assembly (Type CA) details, see Standard Plan A77I. Where a crash cushion is required as specified in Note 11 and the crash cushion attaches to the ends of the guard railing, the terminal anchor assembly (Type CA) and return section may not be required (see Project Plans).
9. For terminal anchor assembly (Type SFT) details, see Standard Plan A77G.
10. Terminal sections not to be installed on trailing end of guard railing constructed adjacent to one-way roadways.
11. A crash cushion is required for Type 4A, 5A and 6A layouts, when the end of the guard railing is within 9.0 m of the edge of traveled way (ETW) of approaching traffic. For the type of crash cushion to be used, see the Project Plans and Special Provisions.
12. When width 'W' exceeds 3.8 m; to calculate the length of parabolic flare use "L=3W" and round to nearest 3.8 m.
13. For the type of terminal system to be used, see Project Plans and the Special Provisions.
14. For details of a terminal system typically used as a flared end treatment on Type 8A Layouts, see Standard Plan A77L. For details of a terminal system typically used on Type 8A Layouts where site conditions will not accommodate a flared end, see Standard Plans A77M and A77N.
15. Use a flat plate washer on the rail face when attaching rail element to these posts.
16. Wood post with wood block are only to be used for these posts and blocks.

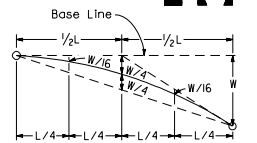


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

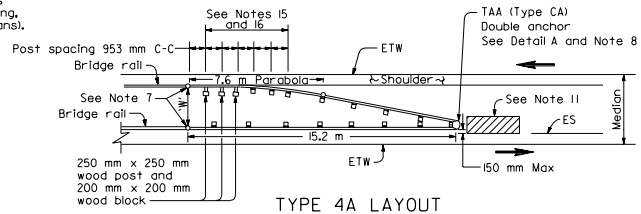
$Y = \frac{WX^2}{L^2}$

Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

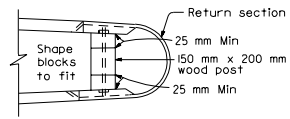
PARABOLIC FLARE OFFSETS



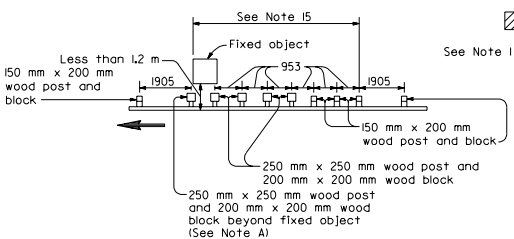
TYPICAL PARABOLIC LAYOUT



TYPE 4A LAYOUT



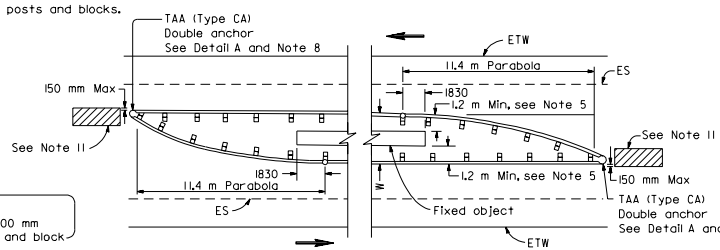
DETAIL A



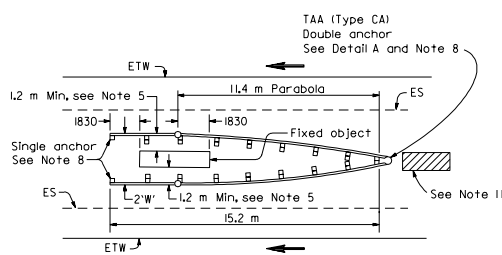
Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 250 mm x 250 mm wood post with 200 mm x 200 mm wood blocks at 953 mm center to center spacing are to be used between fixed objects.

APPROACH RAILING TRANSITION DETAIL FOR FIXED OBJECT

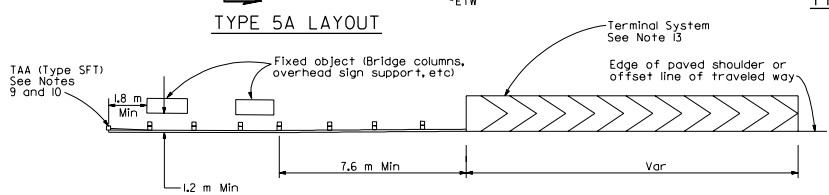
Use with Type 5A, 6A, and 8A layouts where minimum clearances specified in Note 5 cannot be obtained between the face of the guard railing and fixed object(s).



TYPE 5A LAYOUT



TYPE 6A LAYOUT



TYPE 8A LAYOUT
See Note 14

TAA = Terminal Anchor Assembly

Caltrans Metric

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Ellis K. Hirst
July 1, 1999
PLANS APPROVAL DATE
REGISTERED PROFESSIONAL ENGINEER Ellis K. Hirst No. C17926 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA
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STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

A77E

1999 STD. PLAN A77E